

CLAIMS

What is claimed is:

1. An isolated antibody which specifically binds to a polypeptide comprising an amino acid sequence selected from the group consisting of:
 - a) an amino acid sequence of SEQ ID NO:2,
 - b) a naturally-occurring amino acid sequence having at least 90% sequence identity to the sequence of SEQ ID NO:2,
 - c) a biologically-active fragment of at least 10 amino acid residues of the amino acid sequence of SEQ ID NO:2, and
 - d) an immunogenic fragment of at least 10 amino acid residues of the amino acid sequence of SEQ ID NO:2.
2. A pharmaceutical composition comprising the antibody of claim 1 in conjunction with a suitable pharmaceutical carrier.
3. A method of preparing a polyclonal antibody with the specificity of the antibody of claim 1 comprising:
 - a) immunizing an animal with the polypeptide of SEQ ID NO:2 or an immunogenic fragment of at least 10 amino acid residues thereof under conditions to elicit an antibody response;
 - b) isolating animal antibodies; and
 - c) screening the isolated antibodies with the polypeptide thereby identifying a polyclonal antibody binds specifically to the polypeptide of SEQ ID NO:2.
4. An antibody produced by a method of claim 3.
5. A pharmaceutical composition comprising the antibody of claim 4 in conjunction with a suitable pharmaceutical carrier.

1 6. A method of making a monoclonal antibody with the specificity of the antibody of claim 1 comprising:

- 6 a) immunizing an animal with the polypeptide of SEQ ID NO:2 or an immunogenic fragment of at least 10 amino acid residues thereof under conditions to elicit an antibody response;
- b) isolating antibody producing cells from the animal;
- c) fusing the antibody producing cells with immortalized cells in culture to form monoclonal antibody-producing hybridoma cells;
- d) culturing the hybridoma cells; and
- e) isolating from the culture monoclonal antibodies which binds specifically to the polypeptide of SEQ ID NO:2.

7. A monoclonal antibody produced by a method of claim 6.

8. A pharmaceutical composition comprising the antibody of claim 7 in conjunction with a suitable pharmaceutical carrier.

9. The antibody of claim 1, wherein the antibody is:

- 21 (a) a chimeric antibody;
- (b) a single chain antibody;
- (c) a Fab fragment; or
- (d) a F(ab')₂ fragment.

26 10. The antibody of claim 1, wherein the antibody is produced by screening a Fab expression library.

11. The antibody of claim 1, wherein the antibody is produced by screening a recombinant immunoglobulin library.

1 12. A diagnostic test for a condition or disease associated with the expression of human stem cell antigen-2 (SCAH-2) in a biological sample, the method comprising:

- 6 a) combining the biological sample with an antibody of claim 1, under conditions suitable for the antibody to bind the polypeptide and form an antibody:polypeptide complex, and
- b) detecting the complex, wherein the presence of the complex correlates with the presence of the polypeptide in the biological sample.

13. A diagnostic test of claim 12, wherein said antibody is labeled with a detectable label.

14. An antibody of claim 1, labeled with a detectable label.

15. A method of diagnosing a condition or disease associated with the expression of human stem cell antigen-2 (SCAH-2) in a subject, comprising administering to said subject an effective amount of the composition of claim 14.

16. A method of detecting a polypeptide having an amino acid sequence of SEQ ID NO:2 in a sample, the method comprising:

- 21 a) incubating the antibody of claim 1 with a sample under conditions to allow specific binding of the antibody and the polypeptide, and
- b) detecting specific binding, wherein specific binding indicates the presence of a polypeptide having an amino acid sequence of SEQ ID NO:2 in the sample.

17. A method of purifying a polypeptide having an amino acid sequence of SEQ ID NO:2 from a sample, the method comprising:

- 26 a) incubating the antibody of claim 1 with a sample under conditions to allow specific binding of the antibody and the polypeptide, and
- b) separating the antibody from the sample and obtaining the purified polypeptide having an amino acid sequence of SEQ ID NO:2.

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18. A method of treating cancer, comprising administering to a patient in need of such treatment an effective amount of an antibody of claim 1.

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19. A method of claim 18, wherein the cancer is prostate cancer.

20. A method of claim 18, wherein the antibody is a monoclonal antibody.

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